Owner's Guide

CASCADE® 2671 DUO CART AND CASCADE 3171 DUO WALL-MOUNT

85.2641.00

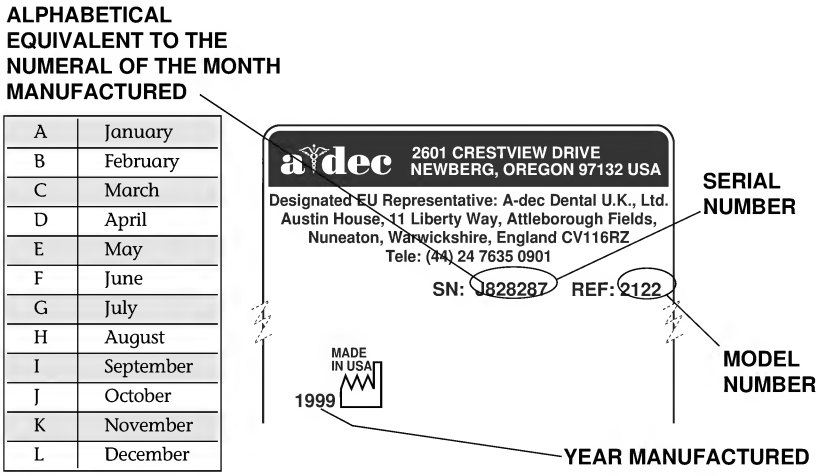
Warranty Information

Serial Number _____

Model Number _____

Date Purchased _____

Date of Service	Model/Description of Service	Technician's Initials



Serial Number Identification

Serial Number Location:

- Located on the underside of the assistant's work surface

For service information contact your local authorized A-dec dealer.

Check with local codes and A.D.A. (Americans with Disabilities Act) requirements for installation of this product.

A-dec warrants its products and A-dec/W&H Synea handpieces against defects in material or workmanship for one year from time of delivery. All other handpiece instrumentation has a warranty period of six months. A-dec's sole obligation under the warranty is to provide parts for the repair, or at its option, to provide the replacement product (excluding labor). The buyer shall have no other remedy. (All special, incidental, and coincidental damages are excluded.) Written notice of breach of warranty must be given to A-dec within the warranty period. The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse.The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilization chemicals and processes. The warranty also does not cover light bulbs. Failure to follow instructions provided in A-dec's Operation and Maintenance Instructions (Owner's Guide) may void the warranty.

NO OTHER WARRANTIES AS TO
MERCHANTABILITY OR OTHERWISE ARE MADE.

a-dec

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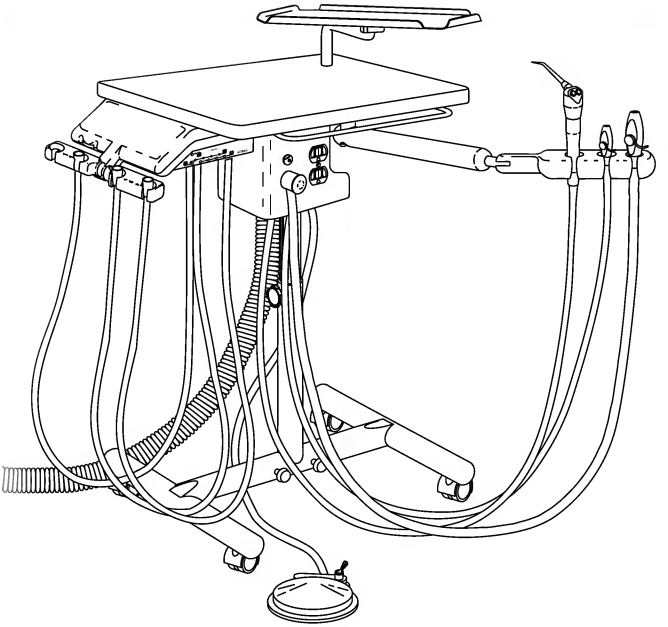
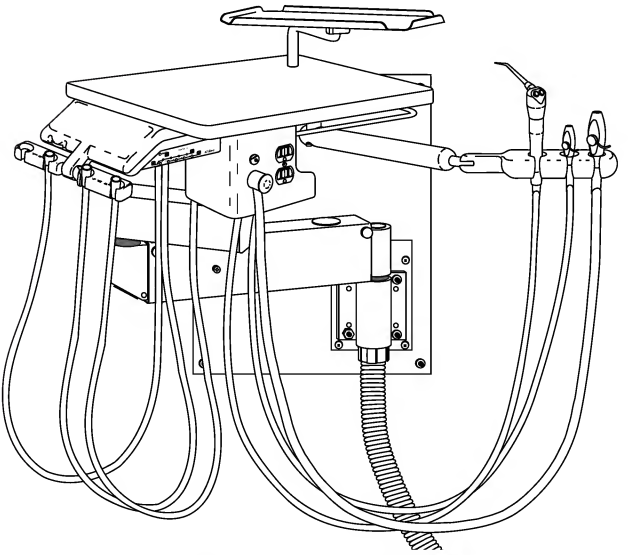


Cascade 2671 Duo Cart
(with optional tray holder)



Cascade 3171 Duo Wall Mount
(with Optional Tray Holder)

Serial number location, service information, and warranty information are located on the inside front cover and front page.

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Your Cascade 2671 Duo Cart OR Cascade 3171 Duo Wall-Mount

Your duo unit includes the Cascade handpiece delivery system and assistant's instrumentation. The handpiece delivery system is built around A-dec's proven Century Plus® control block for three handpieces.

Handpiece activation is automatic. When you lift a handpiece from its holder, the handpiece becomes active and will run when you press on the foot control disc *(refer to page 5)*. Return the handpiece to its resting position to deactivate it.

Adjustment keys *(see Figure 1)* are provided for your use when making adjustments to the recessed controls, including coolant air, coolant water, and handpiece flush. If the adjustment keys are ever misplaced, you can use a 1/8" hex key. You may order additional or replacement keys from your authorized A-dec dealer.

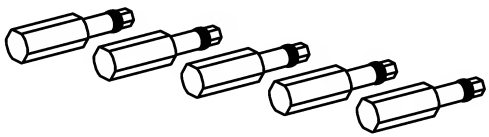

Figure 1. Autoclavable Adjustment Keys

The assistant's instrumentation includes A-dec's autoclavable syringe, autoclavable saliva ejector, and autoclavable HVE (a second autoclavable HVE is optional).

The unit post box *(see Figures 2 and 3)* includes the self-contained water bottle, solids collector, water quick disconnect, and duplex power outlet (120 VAC units only).

An optional tray holder is easily converted for right- or left- hand use *(refer to page 24)*.

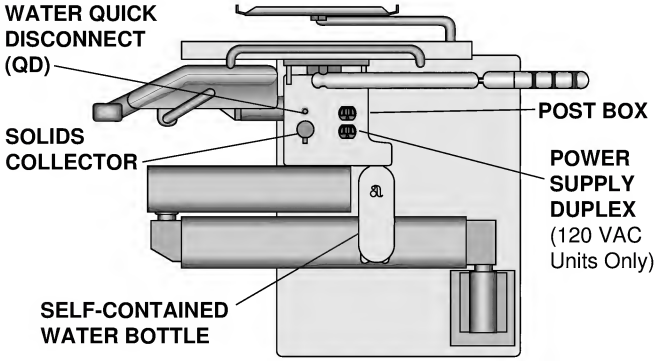

Figure 2. Wall-Mount Post Box

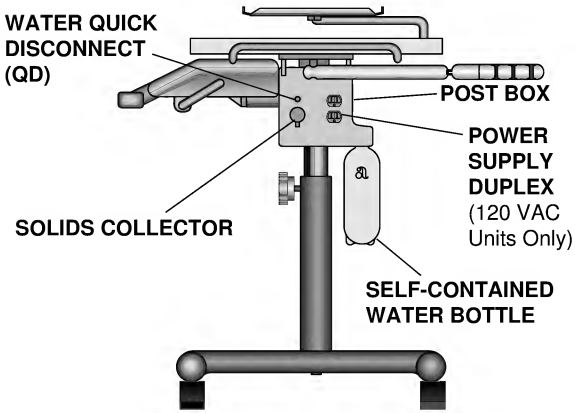

Figure 3. Cart Post Box

Drive Air Pressure Gauge

The drive air pressure gauge *(see Figure 4)* indicates, in psi and kg/cm^2, the drive air pressure to the active handpiece.

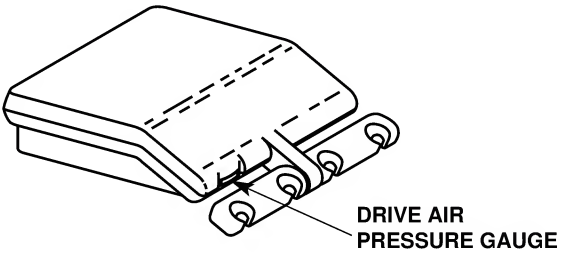

Figure 4. Drive Air Pressure Gauge

Foot Control

The foot control modulates drive air to the active handpiece and provides an air signal that activates the coolant air and coolant water flow. The foot control is operated by light foot pressure applied to any part of the foot control disc.

The foot control is equipped with a wet/dry toggle and can be equipped with an optional chip blower button *(see Figure 5)*.

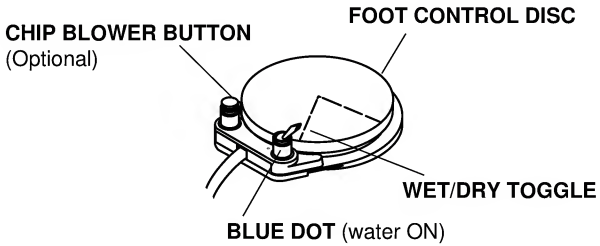

Figure 5. Foot Control

Wet/Dry Toggle. Allows you to shut off the coolant water to the handpiece without moving your hands from the oral cavity. Using your foot, move the toggle away from the blue dot to turn the coolant water OFF. Move the toggle toward the blue dot to turn the coolant water ON.

Chip Blower Button. Sends a jet of air through the handpiece when it is not running.

Handpiece Controls

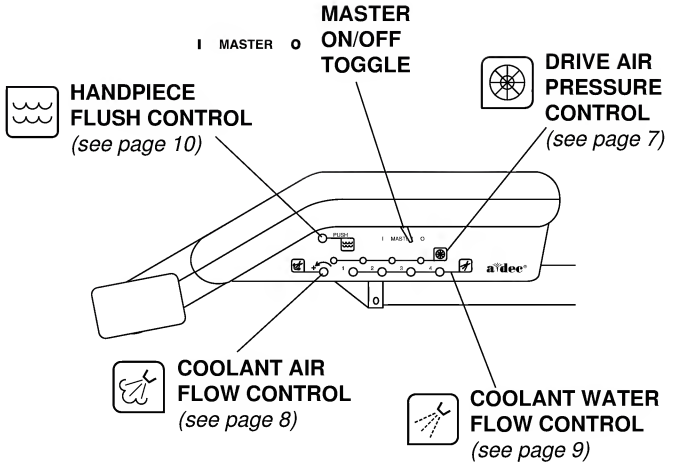

Figure 6. Handpiece Controls

Master On/Off Toggle

I MASTER O The **master on/off toggle** *(see Figure 6)* turns air, water, and electricity on or off to the system.

CAUTION

The MASTER ON/OFF TOGGLE should be in the OFF (0) position whenever the unit is not in use.

This will prevent the possibility of water damage should a leak occur while the unit is unattended.

Making sure the unit is off will also prevent the possibility of self-activation and the resulting burn-out of your electrical accessories.

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Drive Air Pressure Controls

The drive air pressure controls *(see Figure 6 on page 6)* are used to adjust the drive air pressure to each handpiece.

Adjust the drive air pressure to meet the handpiece manufacturer's dynamic drive air pressure specification. *Refer to the documentation that came with your handpiece for the dynamic drive air pressure specification.*

You will need a 3⁄32" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the drive air gauge on the front of the control head *(see Figure 4 on page 4)*.
3. Move the wet/dry toggle on the foot control *(see Figure 5 on page 5)* to the OFF position, away from the blue dot.
4. Turn the drive air control clockwise until the valve seats.
5. Fully depress the foot control disc.
6. While running the handpiece, watch the drive air gauge and adjust the handpiece dynamic drive air pressure to meet manufacturer's specifications.
   - Turn the drive air control counterclockwise to increase drive air pressure flow.
   - Turn the control clockwise to decrease flow.

NOTE

Do not turn the control counterclockwise beyond the point where the drive air pressure no longer increases. The control adjustment screw may come completely out of the unit.

7. Repeat steps 1 through 6 for ***EACH*** handpiece.

Coolant Air Flow Control

The coolant air flow control *(see Figure 7)* is used to adjust the coolant air flow to all handpieces.

You will need an adjustment key (see Figure 1 on page 2) or a 1⁄8" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the coolant air control *(see Figure 7)*.
3. Move the wet/dry toggle on the foot control *(see Figure 5 on page 5)* to the OFF position, away from the blue dot.
4. Insert an adjustment key, or a 1⁄8" hex key, into the coolant air flow control.
5. Fully depress the foot control disc to activate the handpiece.
6. Adjust the coolant air flow to fit your needs. A strong flow of air is recommended.
   - Turn the control clockwise to decrease the flow.
   - Turn counterclockwise to increase the flow.
7. The coolant air has been set for ***ALL*** handpieces.

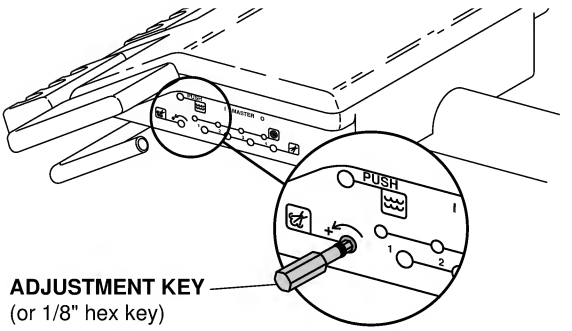

Figure 7. Coolant Air Flow Control

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Coolant Water Flow Controls

The coolant water flow controls are used to adjust the flow of coolant water to each handpiece *(see Figure 8)*.

You will need an adjustment key (see Figure 1 on page 2) or a 1/8" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the coolant water flow controls *(see Figure 8)*.
3. Move the wet/dry toggle on the foot control *(see Figure 5 on page 5)* to the ON position, toward the blue dot.
4. Insert an adjustment key, or a 1/8" hex key, into the coolant water flow control for the handpiece being adjusted.
5. Hold the handpiece over a receptacle. Be sure to hold the handpiece so that the water will be directed away from you and into the receptacle.

   Then, fully depress the foot control disc to activate the handpiece.
6. Adjust the coolant water flow to fit your needs.
   - Tjurn the control clockwise to decrease the flow.
   - Turn counterclockwise to increase the flow.
7. Adjust the coolant water for ***EACH*** handpiece.

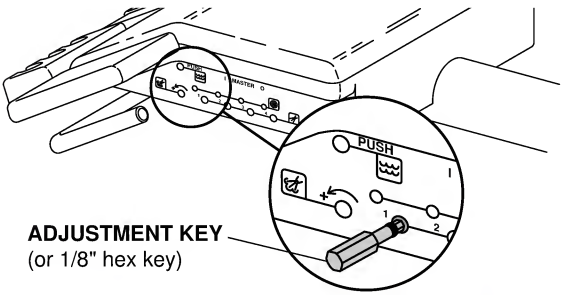

Figure 8. Coolant Water Flow Control

Handpiece Tubing Flush

The handpiece tubing flush system flushes more water through the tubings in less time than is normally possible when operating the foot control only. The handpieces should not be connected when flushing the tubings.

How Often Should the Handpiece Tubings Be Flushed?

After Each Patient:

Flush the tubings for about 20–30 seconds.

At the Beginning of Each Day:

Flush the tubings for 2–3 minutes.

Flushing the Handpiece Tubings

Gather up all the handpiece tubings that use coolant water and hold them over a sink, cuspidor bowl or basin. Be sure you hold the tubings so that the water will be directed away from you and into the receptacle *(see Figure 9)*.

Insert an adjustment key or 1/8" hex key into the handpiece tubing flush control on the side of the control head *(see Figure 9)*. Push in and hold the key for the appropriate time required, either for flushing between patients or flushing at the beginning of each day, depending on the situation. Remove the key and replace the tubings in their holders. Be careful to replace each in the proper holder.

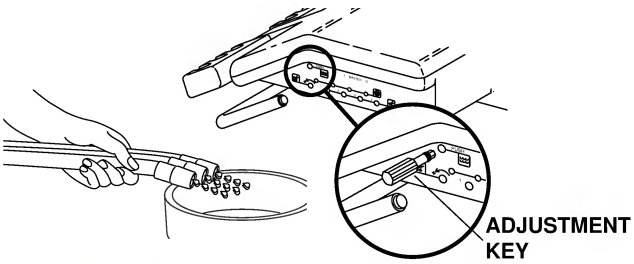

Figure 9. Handpiece Tubing Flush

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Handpiece Holder Adjustments

The holder tension was set at the factory. However, if a holder is difficult to reposition or repositions too easily, the holder tension can be adjusted.

To adjust the holder tension:

- Loosen or tighten the tension adjustment screw *(see Figure 10)*.

To reposition a holder:

- Rotate the holder to the desired angle.

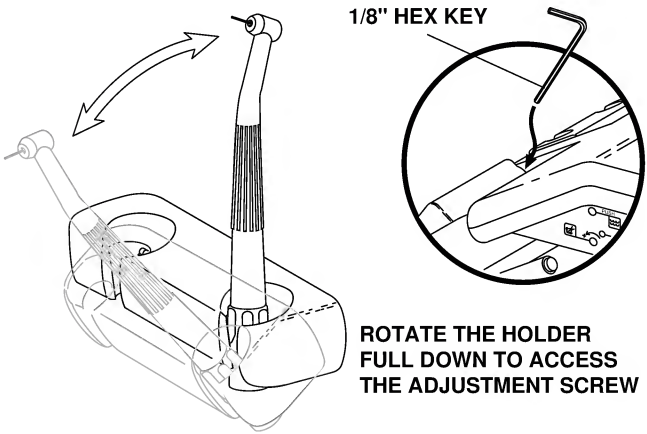

Figure 10. Unitized Handpiece Holder

Handpiece Dry Block Conversion

Your handpiece delivery system has three to four handpiece control blocks with coolant water to the handpiece. In some cases a control block without coolant water, a dry block, is required. If you require a dry block (offering no water to the handpiece) on your handpiece control system, a dry block conversion kit has been included with your system.

Installing the Dry Block Conversion Kit

1. Move the master on/off toggle to the OFF position. Bleed the system water by operating the syringe and flushing the handpiece tubings.
2. Locate the handpiece control block position that will be the dry block. Access the control blocks underneath the control head.
3. Use a 3/32" hex key to remove the large red cartridge from the control block. Install the large black cartridge from the dry block conversion kit into the control block *(see Figure 11)*.
4. Use a 3/32" hex key to remove the small blue cartridge from the same control block. Install the small black cartridge from the dry block conversion kit into the control block.
5. Turn your handpiece control system on, then check the function of the dry block handpiece conversion. A small amount of residual water may be discharged from the handpiece tubing but should dry after a few seconds.

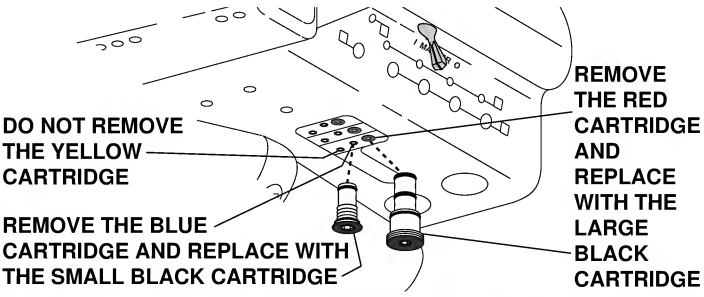
DO NOT REMOVE THE YELLOW CARTRIDGE
REMOVE THE BLUE CARTRIDGE AND REPLACE WITH THE SMALL BLACK CARTRIDGE
REMOVE THE RED CARTRIDGE AND REPLACE WITH THE LARGE BLACK CARTRIDGE

Figure 11. Handpiece Dry Block Conversion

Oil Collector

The oil collector on your unit needs to be cleaned once a week for normal usage. Clean more often for heavier use.

1. Remove the oil collector jar from the unit and discard the old gauze *(see Figure 12)*.
2. Fold a new two-inch square gauze pad into quarters and place it against the spring inside the jar.
3. Screw the oil collector jar onto the unit. Do not overtighten.

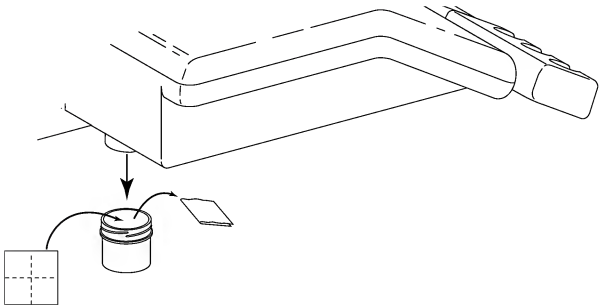

Figure 12. Oil Collector

Assistant's Instrumentation

Autoclavable HVE & Autoclavable Saliva Ejector

To operate the autoclavable HVE and saliva ejector, simply turn the control valve.

The autoclavable HVE and saliva ejector can be easily converted for right- or left-hand operation. To convert, press the control valve out of the valve body *(see Figure 13)*. Rotate the control valve 180°, then press it back into the valve body.

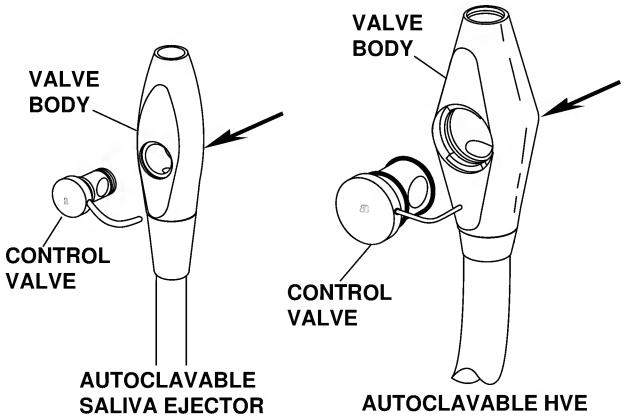

Figure 13. Right- to Left-Hand Conversion

Refer to your ***Assistant's Instrumentation Owner's Guide*** *(A-dec Publication No. 85.2610.00)* for complete instructions on cleaning your HVE and saliva ejector.

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Solids Collector

The solids collector *(see Figure 14)* prevents solids from entering the central vacuum system.

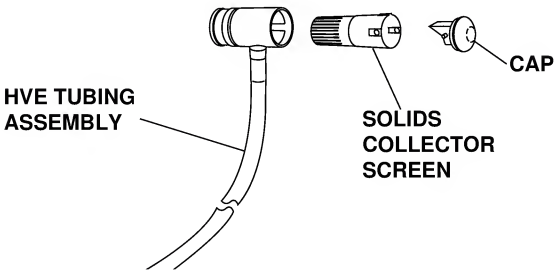

Figure 14. Solids Collector

Refer to your ***Assistant's Instrumentation Owner's Guide*** *(A-dec Publication No. 85.2610.00)* for complete solids collector maintenance instructions.

Autoclavable Syringe

To operate the syringe *(see Figure 15)*:

- Move the on/off toggle to the ON position.
- Air – Press the right button down.
- Water – Press the left button down.
- Spray – Press both buttons down.

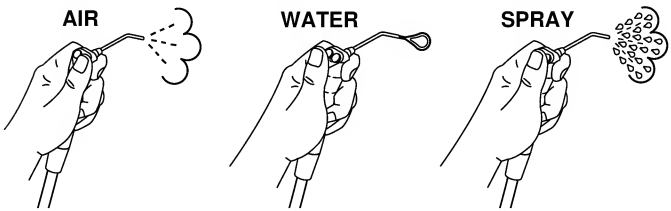

Figure 15. Autoclavable Syringe

Refer to your ***Autoclavable Syringe Owner's Guide*** *(A-dec Publication No. 85.0680.00)* for complete syringe operation and maintenance instructions.

Tray Holder (Optional)

Left/Right Conversion

The optional tray holder can be easily mounted on either side of the unit's work surface *(see Figure 16)*.

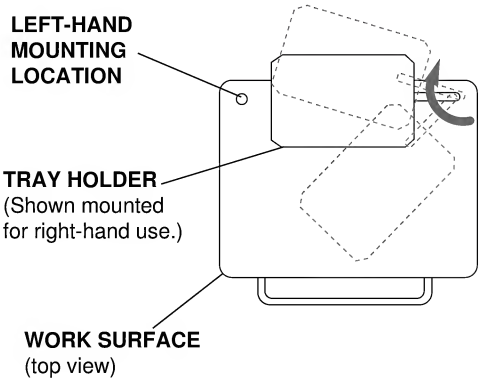

Figure 16. Tray Holder Left/Right Conversion

1. Remove the plug from the work surface corner opposite the current tray holder location.
2. Remove the tray holder from the unit's work surface and set aside.
3. Remove the brass tray holder bushing from the work surface by removing the 9/16" hex nut *(located on the underside of the unit's work surface)* that secures the bushing to the work surface.
4. Lift the brass bushing from its seat and move it to the opposite side of the unit work surface.
5. Install the 9/16" hex nut to the new position and tighten the hex nut.
6. Install the tray holder into the brass bushing.
7. Place the plug into the open tray holder hole.

System Air and Water Pressure

For system air and water pressure adjustments, refer to your ***Floor Boxes Owner's Guide*** *(A-dec Publication No. 85.2611.00).*

Care Instructions

For recommended asepsis instructions, refer to ***Equipment Asepsis Owner's Guide*** *(A-dec Publication No.85.0696.00).*

For recommended self-contained water system care, refer to ***A-dec Self-contained Water System Owner's Guide*** *(A-dec Publication No. 85.0675.00).*

Cart Adjustments

Cart Height

WARNING

The cart is very heavy. Cart height adjustment requires two people to safely complete. Firmly tighten the knob after adjusting the cart height, serious bodily injury may result if the knob is not secure.

The cart is very heavy. Cart height adjustment requires two people to safely complete. Securely hold the cart top so it will not drop and loosen the knob *(see Figure 17)*.

Lift or lower the cart top until the work surface is at the desired height, then firmly tighten the knob. If the top lowers, the knob was not tightened firmly enough.

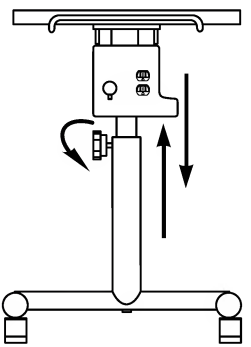

Figure 17. Cart Height Adjustment
(Shown without control head or assistant's arm for clarity.)

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Wall-Mount Adjustments

Unit Leveling

Your wall-mounted unit is leveled during installation and should not require adjustment. However, if the unit needs to be leveled, the following procedures will help you.

Leveling Front-To-Back:

Two leveling setscrews are supplied with the unit. These will be either in the top or bottom leveling screw holes *(see Figure 18 on page 20)*.

To level the wall-mounted unit:

Pull the unit away from the wall and place in your normal operating position. Place a leveling device on top of the work surface.

If the unit tilts forward from the wall (see Figure 18A on page 20):

1. Place a leveling device on the work surface.
2. Loosen the bottom two mounting screws.
3. Install the leveling setscrews in the bottom two holes, then tighten them until the unit is level.
4. Retighten the mounting screws.

(continued on page 20)

Unit Leveling (continued)

If the unit tilts toward the wall (see Figure 18B):

1. Place a leveling device on the work surface.
2. Loosen the top two mounting screws.
3. Place the leveling setscrews in the top two holes, then tighten until the unit is level.
4. Retighten the mounting screws.

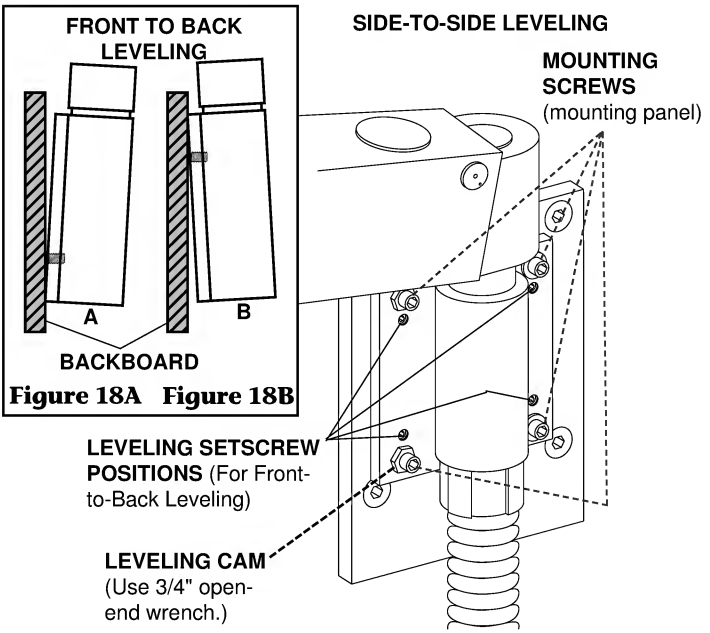

Figure 18. Leveling the Wall Mount

Leveling Side-To-Side:

1. Loosen the four hex screws in the mounting panel, about 1/4 of a turn.
2. Place a leveling device on the work surface.
3. Using a 3⁄4" open-end wrench, gently turn the leveling cam *(see Figure 18)* until the unit is level.
4. Retighten the mounting screws.

Arm Spring Tension

When you move the unit, it should stay where you place it. If the unit tends to drift up or down, the tension of the arm's internal spring needs to be adjusted.

NOTE

The spring tension should be adjusted with a "normal" load on the work surface. The brake on/off toggle should be in the OFF position.

1. Locate the adjustment screw under the arm *(see Figure 19)*.

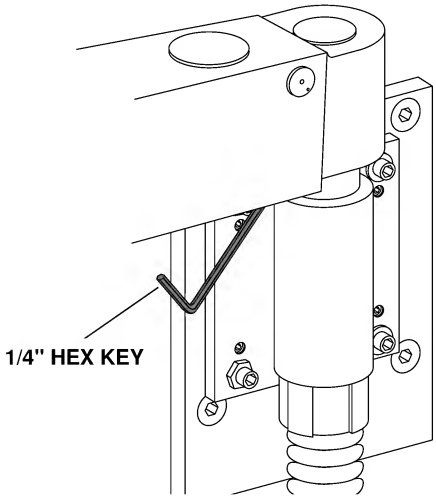

Figure 19. Arm Spring Tension Adjustment

2. Use a 1/4" hex key to make the adjustment.
   - If the unit drifts down, turn the screw clockwise to increase spring tension.
   - If the unit drifts up, turn the screw counterclockwise to decrease spring tension.

Arm Brake Adjustment

NOTE

Adjust arm spring tension prior to arm brake adjustment *(refer to page 21)*. Retest the brake after spring adjustment.

The air-actuated arm brake on your wall-mounted unit has been set at the factory and should not need further adjustment. If the brake does not hold, first check to be sure that the brake on/off toggle is in the ON position, and that there is air (at least 60 psi) to the unit.

Refer to your ***Floor Box Owner's Guide*** *(A-dec Publication No. 85.2611.00)* for complete air pressure adjustment procedures.

If the brake will not hold, the brake may be too loose. A brake which is too tight will cause a screeching or scraping noise as you move the unit up or down when the brake is not on.

To adjust the brake:

1. Move the brake on/off toggle to the OFF position.
2. Remove the plug from the access hole on the left side of the arm *(see Figure 20)*.

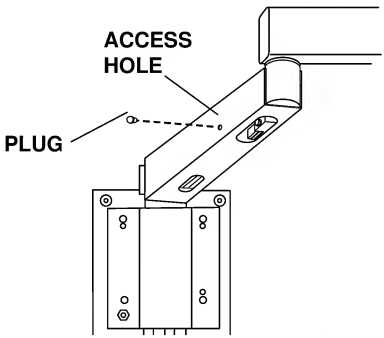

Figure 20. Arm Brake

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3. Push down on the arm until the inner hole lines up with the outer hole, then insert a 5/32" hex key.
4. Locate the adjustment nut under the arm *(see Figure 21)*.
   - *To tighten the brake,* use a 7/16" open-end wrench to hold the adjustment nut while you turn the hex key clockwise
   - *To loosen the brake,* use a 7/16" open-end wrench to hold the adjustment nut while you turn the hex key counterclockwise.

NOTE

Adjust the nut in small increments and retest the brake. Overtightening or overloosening the adjustment nut may damage the brake.

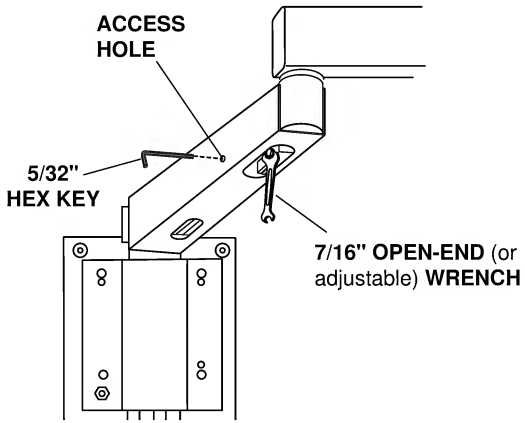

Figure 21. Arm Brake Adjustment

CART & WALL-MOUNT ADJUSTMENTS

Left/Right Conversion

Your duo wall mount can easily be converted for right- or left-hand delivery. Simply rotate the control head and assistant's arm to the opposite side of the work surface *(see Figure 22)*.

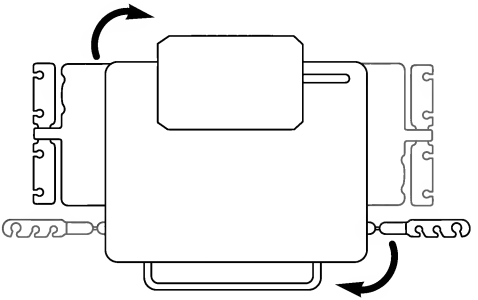

Figure 22. Left/Right Conversion

Work Surface Leveling

To level your assistant's unit work surface:

1. Place a leveling device on the work surface.
2. Check for level front-to-back and side-to-side.
3. Using a 3⁄16" hex key, loosen but do not remove the four mounting screws found on the bottom of the leveling plate *(see Figure 23 on page 25)*.

4. Locate the four leveling setscrews *(see Figure 23)*.

   Front-to Back Leveling:
   Face the work surface handle.

   If the work surface tilts toward you, use a 3⁄16" hex key and tighten the two leveling setscrews closest to you until the work surface is level.

   If the work surface tilts away from you, tighten the two leveling setscrews furthest away until the work surface is level.

   Side-to-Side Leveling:
   Face the work surface handle.

   If the work surface tilts to the left, tighten the two leveling setscrews on the left side of the leveling plate until the work surface is level.

   If the work surface tilts to the right, tighten the two leveling setscrews on the right side of the leveling plate until the work surface is level.

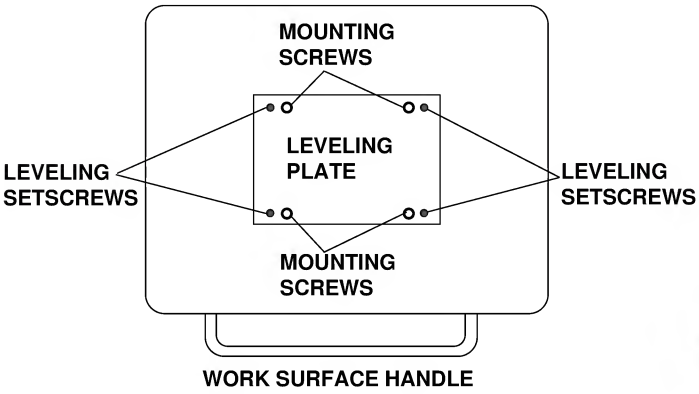

Figure 23. Leveling the Work Surface
(Viewed from the bottom of the work surface.)

5. When you have completed these steps tighten the four mounting screws, then check the work surface again for level.

Maintenance

Handpiece Tubing Flush .....page 10
Oil Collector .....page 13
Solids Collector .....page 15

Also refer to the following A-dec documentation for more maintenance information:

Assistant's Instrumentation

Assistant's Instrumentation Owner's Guide *85.2610.00*

Autoclavable Syringe Owner's Guide *85.0680.00*

Care Instructions

Equipment Asepsis Owner's Guide *85.0696.00*

Self-contained Water System Owner's Guide *85.0675.00*

Power Supplies

Floor Box Owner's Guide *85.2611.00*

Adjustments and Specifications

Handpiece Controls
- Drive Air Pressure Controls.....page 7
  (Refer also to your handpiece documentation for the manufacturer's dynamic drive air pressure specification.)
- Coolant Air Flow Control.....page 8
- Coolant Water Flow Controls .....page 9
- Handpiece Holder Positioning .....page 11

Tray Holder (optional)
- Left/Right Conversion.....page 16

Cart Adjustments
- Cart Height.....page 18

Wall-Mount Adjustments
- Unit Leveling .....page 19
- Arm Spring Tension .....page 21
- Arm Brake Adjustment.....page 22

Cart & Wall-Mount Adjustments
- Left/Right Conversion.....page 24
- Work Surface Leveling .....page 24

Also refer to the following A-dec documentation for more adjustment and specification information:

System Air and Water Pressure Adjustments
- ***Floor Box Owner's Guide*** *85.2611.00*

Touch Pad Programming
- ***Cascade 1040 Chair Owner's Guide*** *85.2605.00*
- ***Decade 1011/1021 Chair Owner's Guide*** *85.2635.00*
- ***Master Touch Pad Owner's Guide*** *85.2627.00*

Service Requirements for Unit Operation:

Minimum Air:

2.50 cfm (70.80 L/min) at 80 psi (551 kPa)

Minimum Water:

1.50 gpm (5.68 L/min) at 40 psi (276 kPa)

Minimum Vacuum:

12 cfm (339.84 L/min)
at 8 inches of mercury (27 kPa)

Cart Specifications:

25 lb (11.34 kg) vertical load is the maximum safe load capability of the work surface.

5 lb (2.27 kg) vertical load is the maximum safe load capability of the optional tray holder.

Weights of optional attachments:

Touch Pad: .5 lb (.23 kg)
Tooth Dryer: 1 lb (.45 kg)
Intra-Oral Light Sources: 1 lb (.45 kg)
Scaler: 2 lb (.91 kg)
Curing Light: 3 lb (1.36 kg)

Wall-Mount Specifications:

100 lb (45.36 kg) maximum unit weight.

200 ft-lb (270 N·m) maximum moment created at the wall by the freestanding unit.

40 lb (18.14 kg) vertical load on work surface will be supported by the arm brake.

5 lb (2.27 kg) vertical load is the maximum safe load capability of the optional tray holder.

Weights of optional attachments:

Touch Pad: .5 lb (.23 kg)
Tooth Dryer: 1 lb (.45 kg)
Intra-Oral Light Sources: 1 lb (.45 kg)
Scaler: 2 lb (.91 kg)
Curing Light: 3 lb (1.36 kg)

Any optional non-A-dec attachments and/or accessories must comply with EN 60601-1 and EN 60601-1-2.

Specifications are subject to change without notice.

Identification of Symbols

Recognized by Underwriters Laboratories Inc. ® with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1. Recognized with respect to electric shock, fire, mechanical and other specified hazards only in accordance with CAN/CSA C22.2, No. 601.1.

UL listed to US (UL 544) and Canadian (CAN/CSA C22.2, No. 125) safety standards.

Classified by Underwriters Laboratories Inc. ® with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1. Classified with respect to electric shock, fire, mechanical and other specified hazards only in accordance with CAN/CSA C22.2, No. 601.1.

Conforms to European Directives
(refer to Declaration Statement)

Protective earth (ground).

Functional earth (ground).

Attention, consult accompanying documents.

TYPE B APPLIED PART.

CLASS II EQUIPMENT.

Classification of Equipment (EN 60601-1)

Type of shock protection:
CLASS I EQUIPMENT
(Dental Chairs, Dental Lights, & Power Supplies)

CLASS II EQUIPMENT
(Chair, Wall, & Cart Mounted Delivery Systems)

Degree of shock protection:
TYPE B APPLIED PART (All products)

Degree of protection against water ingress:
ORDINARY EQUIPMENT (All products)

Mode of operation
CONTINUOUS OPERATION
(All models except Dental Chairs)

Mode of operation
CONTINUOUS OPERATION WITH
INTERMITTENT LOADING (Dental Chairs)

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